

Opener Question 3M

5) A function is described using the following information

$$\{x \in \mathbb{R} \mid 2 \leq x \leq 20\}$$

i) State in words what this means
ii) Is this the function's domain or range

II

x	y
1	2
2	3
3	4
4	5

Is this a function? Why?

Feb 5-8:42 AM

Opener Question 3M

5) A function is described using the following information

$$\{x \in \mathbb{R} \mid 2 \leq x \leq 20\}$$

x is a set of real numbers such that x is greater or equal to 2 but less than or equal to 20

i) State in words what this means
ii) Is this the function's domain or range

II

x	y
1	2
2	3
3	4
4	5

Is this a function? Why?

$R = \{y \in \mathbb{R} \mid y = 4\}$

Feb 5-8:42 AM

1.2 Comparing Rates of Change

Linear vs Quadratic p 17

Linear-first differences are the same
Quadratic-second differences are the same

Linear

x	y
0	0
1	1
2	4
3	9
4	16

$\Delta y' (y_1 - y_0)$
 $y = mx + b$
Degree 1

Quadratic

x	y
0	0
1	1
2	4
3	9
4	16

$\Delta y' \Delta y''$
 $y = ax^2 + bx + c$
Degree 2

Function Notation
State the Dependent Variable in terms of the Independent Variable
i.e. $y = 3x$ $f(x) = 3x$

Feb 5-1:52 PM

EXAMPLE 2 Representing volume as a function of time

Water is poured into a tank at a constant rate. The volume of water in the tank is measured every minute until the tank is full. The measurements are recorded in the table.

Time (min)	0	1	2	3	4	5	6	7
Volume (L)	0.0	1.3	2.6	3.9	5.2	6.5	7.8	9.1

21

Δy $\Delta y'$

x	y
0	0
1	1.3
2	2.6
3	3.9
4	5.2
5	6.5
6	7.8
7	9.1

Linear Function
Degree = 1
First Differences the Same (1.3)

$y = 1.3x$
 $V(t) = 1.3t$
Volume = V
time (min) = t
 $D = \{t \in \mathbb{R} \mid 0 \leq t \leq 7\}$
 $R = \{V \in \mathbb{R} \mid 0 \leq V \leq 9.1\}$

Sep 6-1:44 PM

Hmk p 24-25 q 1, 2, 4, 6, 7 & 8

Feb 5-2:07 PM

$\Delta y' \Delta y''$

x	y
0	0
0.1	9.84
0.2	9.36
0.3	8.56
0.4	7.44
0.5	6.00

$\Delta y' = -0.16$
 $\Delta y'' = -0.48$
 $\Delta y'' = -0.80$
 $\Delta y'' = -1.12$
 $\Delta y'' = -1.44$

Feb 10-10:10 AM

Degree - Quad or Lin

6 a) $f(x) = -4x(x-1) - x$

$f(x) = -4x^2 + 4x - x$

$f(x) = -4x^2 + 3x$

Degree = 2
∴ Quadratic

Review Ques -
P37 21-5
P70 21-3

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$f(x) = 60x$
 $f(30) = 60(30)$
 $f(30) = 1800$

60
 3600

$D = \{x \in W \mid 0 \leq x \leq 60\}$
 $R = \{f(x) \in W \mid 0 \leq f(x) \leq 3600\}$

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State the Degree

$y = 3x(x+1)$

$y = 3x^2 + 3x$

Degree = 2

$3x^4 + 2x^2 + 3$

Degree = 4

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a) $h(t) = 29.4t - 4.9t^2$

b) Degree 2 Quadratic

c) t $h(t)$

$t=0$
 0 $h(0) = 29.4(0) - 4.9(0)^2$
 $h(0) = 0$

$t=1$
 24.5 $h(1) = 29.4(1) - 4.9(1)^2$
 $= 29.4 - 4.9$
 $= 24.5$

$t=2$
 39.2 $h(2) = 29.4(2) - 4.9(2)^2$
 $= 58.8 - 19.6$
 $h(2) = 39.2$

$t=3$
 44.1 $h(3) = 29.4(3) - 4.9(3)^2$
 $= 88.2 - 44.1$
 $= 44.1$

$t=4$
 39.2

$t=5$
 24.5

$t=6$
 0

$t=7$
 0

$t=8$
 0

$t=9$
 0

$t=10$
 0

$D = \{t \in R \mid 0 \leq t \leq 10\}$

Sep 5-10:18 AM

Sep 5-10:31 AM